BROADBAND EXPANSION GRANT APPLICATION
For Fiscal Year 2022

Primary Applicant (Name and Address): PCs for People 2492 Doswell Avenue Saint Paul, MN 55108	Applications MUST be UPLOADED to ERF via the Commission's website, http://psc.wi.gov/apps35/ERF_upload/content/mymenu.aspx. Refer to section 2.3 for detailed instructions. Applications are due and MUST be uploaded to ERF no later than: **March 17, 2022** at 4:00pm (16:00) Central Time. **Late applications will not be accepted.**
	Contact for further information: PSCStatebroadbandoffice@wisconsin.gov
	Date: March 16, 2022

The Public Service Commission of Wisconsin is seeking applications for Broadband Expansion Grants. The Commission may award one or more grants during Fiscal Year 2022 to public and private entities that meet the eligibility requirements set forth in Wis. Stat. § 196.504. This grant round will be funded with bond proceeds authorized by the Wisconsin Building Commission pursuant to Wis. Stat. § 13.48(30). As such, successful applicants are subject to the requirements of Wis. Stat. § 13.48(30). Successful applicants will demonstrate a clear and achievable plan to improve broadband communications services in one or more underserved areas in the State.

Applicant Certification: In signing this application, the undersigned verifies under penalty of perjury that the Applicant and its employees and agents have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition with respect to this application; that no attempt has been made to induce any other person or firm to submit or not to submit an application; that this application has been independently arrived at without collusion with any other proposer, competitor or potential competitor; that this application has not been knowingly disclosed prior to the opening of applications to any other applicant or competitor; that all of the responses and representations of Applicant in this application are true and correct to the best of the undersigned's knowledge, information, and belief; and that Applicant agrees to, accepts, and will comply with all of the terms and conditions respecting this application and any award of a broadband expansion grant as may be established in a grant award Agreement.

Name of Authorized Representative (Type or Print)	Title	Phone
Bryan Mauk	Chief Innovation Officer	(216) 406-6475
Signature of Authorized Representative BM	Date 3/17/2022	

SUMMARY OF GRANT APPLICATION

Primary Applicant Name PCs for People	Amount of Broadband Grant Request (round to nearest dollar) $2,945,850
Federal Employer Identification No. 26-2066045	Amount of Matching Funds Pledged (round to nearest dollar) $517,600
Contact Name and Title Bryan Mauk Chief Innovation Officer	Total Cost of Proposed Project (round to nearest dollar) $3,463,450
Telephone Number 216-406-6475	Project Name HACM – Milwaukee Connected
E-mail Address(es) bmauk@pcsforpeople.org	Type of Proposed Broadband Service (FTTH, Cable, DSL, etc.) Wired and fixed wireless
Grant Manager, if different than Primary Applicant	Type of Proposed Project (Last-mile, Middle-Mile, backbone, other) Last mile
Grant Manager Contact Name	Grant Manager Email Address and Telephone Number
If the application proposes a public-private partnership, list the names, addresses, and FEINs of the partner companies or organizations Housing Authority of the City of Milwaukee, FEIN: 39-1159751 809 N. Broadway, 3rd Floor Milwaukee, WI 53201	
Brief Project Description (2 sentences) PCs for People (a national nonprofit organization dedicated to bridging the digital divide) will partner with the Housing Authority of the City of Milwaukee (HACM) to build wired connections to multi-dwelling unit buildings as well as private, small cell, LTE wireless networks on the Citizens Broadband Radio Service (CBRS) Band. This project will offer extremely affordable and accessible internet service for 3,081 households and an estimated 6,000 individuals living within HACM properties. PCs for People service is $15/month - or free with Affordable Connectivity Program subsidy – for residential consumers, and $30/month for business consumers.	
Maximum Proposed Download Transmission Speed Wired - 100mbps to 1Gbps 5G - 400Mbps	Maximum Proposed Upload Transmission Speed Wired - 100mbps to 1Gbps 5G - 125Mbps
Minimum Proposed Download Speed to Customer Location 100 Mbps	Minimum Proposed Upload Transmission Speed to Customer Location 100 Mbps

County or Counties served by this project Milwaukee County	Community or Communities served by this project Metro Milwaukee area – Milwaukee public housing residents, low-income residents, senior residents, residents with disabilities, low-income families
List of the broadband service providers, if any, currently serving the area the applicant proposes to serve Providers vary by location. Some HACM locations have only one provider present/available in the building. Providers include AT&T, Spectrum, Viasat. Many residents are disqualified from these services for reasons of credit checks, affordability, or absence of marketing /ISP interest in the low-income members of the community. See HACM letter regarding underserved communities they have identified as communities in internet desserts within their properties.	
Does proposed project serve an *unserved* area of the State, as defined in Section 1.4 of the application instruction? (yes/no) No	Is the Applicant certified as a Broadband Forward! Community or Telecommuter Forward! Community, or does the grant project propose to serve a Broadband Forward! Community or Telecommuter Forward! Community? (yes/no) No
For last mile projects or component the expected number of Business Locations that will have access to the improved broadband service (i.e., total business locations passed or with new service access). N/A	For last mile projects or components the expected number of Residential Locations that will have access to the improved broadband service (i.e., total residential locations passed or with new service access). 3,081
Of the improved business locations, how many locations are *unserved*? 0	Of the improved residential locations, how many are *unserved*? 0
For providers that are eligible telecommunications carriers will the proposed broadband service be available to Lifeline customers? (yes/no) N/A	Are there any programs available for low-income households to access low-cost service or discounts? (yes/no) Yes
Is the internet service provider currently participating in the Emergency Broadband Benefit Program? (yes/no) Yes	Is the internet service provider currently participating in the Department of Public Instruction and CESA purchasing's Digital Learning Bridge? (yes/no) No
Did the internet service provider participate in the Public Service Commission's voluntary Broadband Coverage Data Collection in 2021? (yes/no) No	

Please complete this form using Microsoft Excel. A PDF copy must be attached to your application as page four. In addition, this form must also be uploaded to ERF in Excel format.

Grant Summary

Grant Applicant:	Project:
PCs for People	HACM - Milwaukee Connected

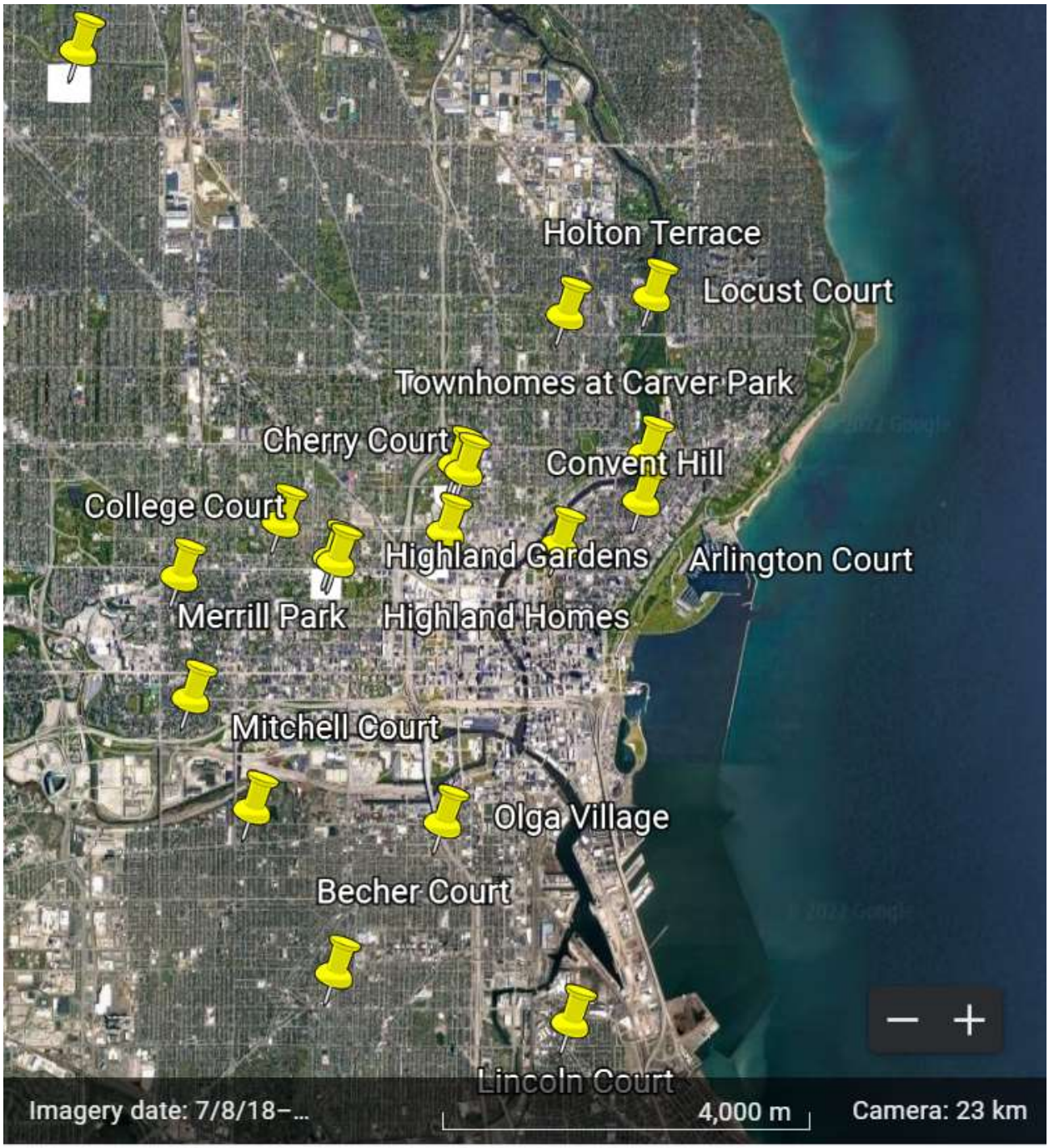
Budget

Line:	Description / Category:	Grant Funds:	Match:	Total:
1	Contractual, Consultant Fees	$ 900,000.00	$ 462,600.00	$ 1,362,600.00
2	Equipment	$ 1,530,600.00		$ 1,530,600.00
3	Supplies	$ 25,000.00		$ 25,000.00
4	Labor (Salary, Fringe)	$ 174,650.00	$ 55,000.00	$ 229,650.00
5	Permitting, Licensing Fees	$ 12,000.00		$ 12,000.00
6	Travel	$ 3,600.00		$ 3,600.00
7	Other	$ 300,000.00		$ 300,000.00
	Total:	$ 2,945,850.00	$ 517,600.00	$ 3,463,450.00
		14.9% match requested		

Pledged Contributions

#:	Entity:	Entity Type:	Pledge Type:	Pledge:
1	PCs for People	Applicant	Salary	$ 55,000.00
2	City of Milwaukee (Backahul, IP Transit, Colo)	Partner	In-Kind	$ 397,800.00
3	HACM (Rooftop Access, Facility support)	Partner	In-Kind	$ 64,800.00
4				
5				
6				
7				
8				
9				
10				
			Total:	$ 517,600.00

Target HACM Micro-Communities in Internet Deserts



3.2.1 Applicant Identification and Contact Information

PCs for People (a national nonprofit organization dedicated to bridging the digital divide) will partner with the Housing Authority of the City of Milwaukee (HACM) to build wired connections to multi-dwelling unit buildings as well as private, small cell, LTE wireless networks on the Citizens Broadband Radio Service (CBRS) Band. This project will offer extremely affordable and accessible internet service for 3,081 households and an estimated 6,000 individuals living within HACM properties. PCs for People service is $15/month - or free with Affordable Connectivity Program subsidy – for residential consumers, and business service starts at $30 per month.

Application Entity:
PCs for People
2492 Doswell Avenue
St. Paul, Minnesota 55108

Contact Person:
Bryan Mauk, Chief Innovation Officer
3126 St. Clair Avenue NE
Cleveland, OH 44114
bmauk@pcsforpeople.org, 216-406-6475

PCs for People is a 501(c)3 nonprofit organization, FIEN 26-2066045.

3.2.2 Project Description

This project is designed to provide an affordable, reliable, high-speed service option to residents of properties owned by the Housing Authority of the City of Milwaukee (HACM) that are currently underserved. Please see page 5 for the project map, as well as the spatial file information submitted via email. The attached letter submitted by the Housing Authority of the City of Milwaukee details the lack of broadband service in the targeted areas.

3,081 households in HACM properties will have access to service, in areas that are currently underserved as described in the attached HACM letter. (This project is not designed to serve businesses, or seasonal residents and tourists.) The estimated download and upload speed for this service is 100/100Mbps or higher.

PCs for People proposes a cost-effective, sustainable solution to provide affordable last mile service via wired and fixed wireless solutions to properties identified by the Housing Authority of the City of Milwaukee as underserved. Access does not equal adoption and our proposal offers a comprehensive approach that will address barriers of access, affordability, and skills for Milwaukee residents. We will provide an attractive and affordable broadband service option to areas where households are not adopting the internet services available to them due to cost, credit issues, access to banking systems, or restrictive contract terms. The proposed service will cost $15 per month (free with Affordable Connectivity Program subsidy) for residential access.

PCs for People employs a variety of MDU and scattered site connectivity solutions, offering a range of speeds and costs depending on the construction type, existing wiring, speed of deployment, and layout of the facilities. Below is a short description of of each approach and its best fit:

- Wired MDU: in facilities where there is existing copper wire (phone, coax, ethernet) run from a centralized location to each unit, the ideal approach is to bring fiber (or wireless mmWave backhaul) to the premises, then use existing infrastructure to the individual units. Finally, a home modem is installed in each unit with Wi-Fi and LAN ports for secure wireless and wired customer usage.
- Wireless 5G: Mid-band 5g technology, featuring significantly faster speeds (400/135 DL/UL) and lower latency (8ms). Infrastructure costs are marginally increased, however there is a more significant cost increase for the end-user's modem.

PCs for People's 5G LTE networks offer standard speed plans of 100Mbps download/100 Mbps upload with a contention ratio of approximately 10:1 to 20:1. Ping speed is generally between 8 and 30ms. This contention ratio offers ample bandwidth for multiple streaming video devices in each home across all customers at the same time. From a performance and customer value perspective this is an internet connection better than a cable network advertising "speeds up to 100 mbps" that are oversold 50:1. With LTE technology deployment, our network latency is comparable with a ping speed generally between 70 and 120ms. Our wired MDU solution provides speeds of 100Mbps download/ 100Mbps upload, with pings in the 8-70ms range. Not only does this service not provide gaps or usage limits overall, it also does not limit one use of data over another, and all application providers will be equally able to provide their services to consumers on an open marketplace. PCs for People has a clearly defined and highly developed Service Level Agreements (SLA's) for all residential and small business/nonprofit customers.

Following the execution of a contract, PCs for People would implement this project in 3 phases:

- Planning - Months 1-3: Wireless radio network planning, fiber build planning and permitting, MDU wired planning
- Construction and network testing - Months 4-12: Deploy network infrastructure and equipment, map coverage, complete beta testing
- Network adoption and support - Months 13-24: Community outreach and marketing, subscriber support, data collection

3.2.3 Itemized Budget

Please see the Summary of Project Budget included as page 3 of this application.

Itemized Budget				
1	Contractual, Consultant Fees		$	1,362,600
		Estimate by City of Milwaukee for Construction of middle mile fiber	$	900,000
		PtP backhaul, IP transit, colocation @ $850 per month per site, 3 years x 13 sites (Match: In-Kind)	$	397,800
		Rooftop Access Rental (Match: In-Kind)	$	64,800
2	Equipment		$	1,530,600
		MOCA Switching Equipment @ $3000 each x 52	$	156,000
		MOCA Converter @ $90 x 2053	$	184,770
		Modem @ $28 x 2,053	$	57,484
		MOCA (power supplies, enclosures, jumpers, etc) $56 per unit x 2053 units	$	114,996
		Wireless Antenna $800 x 4 per tower x 9 poles.	$	28,800
		Outdoor Remote Radio Units (RRUs) 3500 x 4 per tower x 9 poles	$	126,000
		Distributed Baseband Unit (BBU) 17,000 x 9	$	153,000
		Tower Hardware (weatherproof boxes, battery backup power, cabling, etc) $11,000 per pole x 9 Poles	$	99,000
		5G Receivers $428 each x 1,028 units	$	435,550
		5G Core and Servers	$	175,000
3	Supplies		$	25,000
		Estimate of printing for flyers, marketing supplies, office and field consumables	$	25,000
4	Labor (Salary, Fringe)		$	229,650
		Labor Install Tech time avg $22.50 per hour (Physical network build)	$	126,000

		Network Engineer 1 FTE (Virtual network design and build) (Match: Salary and Fringe)	$	103,650
5	Permitting, Licensing Fees			
		SAS Licensing Fees $2 per month x 12 Months x 500 users	$	12,000
6	Travel			
		Tech lodging estimate for out of town techs to support and train local tech	$	3,600
7	Other		$	300,000
		Outreach / Digital Ambassador Manager	$	100,000
		Digital Ambassadors @ $50,000 x 2 (Community outreach to promote digital adoption and support ACP enrollment)	$	100,000
		Customer Support Agent @ 40,000 x 2.5 (Assist with outgoing calls for digital literacy of new customers. After getting modem customers receive check-in calls on days 1, 7, and 30)	$	100,000
	Total		$	3,463,450

3.2.4 Priority Information

a. Matching funds - please see Funding Statement on page 4.

The City of Milwaukee will provide in kind support and matching funds of fiber backhaul and server co-location services with an estimated market value of $397,800.

HACM will provide rooftop access to buildings as well as access to data closets and existing wired infrastructure within buildings for connectivity to their residents. Additionally they will support outreach and marketing to their community. Estimated market value of $64,800.

b. Public-private partnerships

This project is a partnership between PCs for People, a nonprofit organization, and the Housing Authority of the City of Milwaukee (HACM), a public entity.

PCs for People will serve as the ISP of record for this project, deploying wired and fixed wireless connectivity to HACM units. As the ISP of record, PCs for People will provide wiring and tower equipment and installation, maintenance and repairs, billing, and customer service. PCs for People will manage all service provision including subscription and billing, as well as integration with the federal Affordable Connectivity Program.

The Housing Authority of the City of Milwaukee will provide PCs for People with access to all low-income housing properties and support outreach efforts to encourage adoption of low-cost or free service. HACM residents will be engaged in planning and marketing the project through resident councils. Please see attached letter of support for further detail regarding the role of HACM in this partnership.

The City of Milwaukee will provide access to existing fiber infrastructure, construct new fiber in areas identified by the project, provide expertise and technical support in data backhaul, co-location of server infrastructure, and facilitate collaboration between government entities to secure vertical assets for tower locations. PCs for People has an established relationship with the City following this outline, including a City Council approved and executed contract and three active locations broadcasting 4G LTE into the Milwaukee community utilizing the City fiber network as backbone services.

c. Existing broadband service

While many ISPs report serving much of Milwaukee, there are many micro-sections of the community that are under served or unserved. These residents include individuals living within an apartment complex where fewer than two ISPs have built connectivity to the community. Additionally, affordability truly is a barrier to accessibility. While access may technically be available in terms of infrastructure, access is not a reality for residents for whom cost is truly prohibitive.

Any address can be covered in the world if the customer is willing to pay a high enough price. For individuals living on fixed income, even with ACP subsidies internet services are still inaccessible.

As an advocate for affordable housing issues and the expert on the challenges that their residents face, HACM has identified slightly over 3,000 units of housing out of their over 10,000 total units (30%) who have been identified to have extremely limited access to the internet based on the micro-community they live in.

While the providers listed below generally offer service in the Metro Milwaukee area where the HACM properties targeted by the project are located, the attached letter from HACM details the realities residents experience of being underserved by the existing infrastructure. Barriers to access and adoption include being turned down due to previous bills with the provider; credit checks; and concerns with hidden fees, contracts, and price changes.

Based on information HACM residents have shared with case managers and/or other HACM staff, HACM residents are underserved by existing broadband service for a variety of reasons, including:

1) Limited information available to HACM residents about service options, including how to enroll in the Affordable Connectivity Program.
2) Barriers to internet service use due to limited technical knowledge, with no support available from existing internet service providers. For example, many families in HACM units had trouble connecting school-provided laptops and hotspots during virtual instruction, and HACM staff had to provide technical assistance for many families in order for their children to be able to participate in school.

3) Some families have applied to the Emergency Broadband Benefit or Affordable Connectivity Program through existing service providers and have been turned down if they owed money to a provider in the past.
4) Some households lack hardware (smartphone or computer/laptop/tablet) to make a viable use-case for internet adoption, and existing providers may not offer access to the connected device subsidy benefit through the Affordable Connectivity Program.
5) Other barriers include credit checks, hidden fees, equipment charges, contracts, potential price increases, and "bait-and-switch" in which some carriers talk residents into some other "deal" to include other services.

Milwaukee broadband providers:

- Spectrum, $49.99 to $109.99 (year 1 pricing, increases by $25 after year 1), advertised speeds of 200 Mbps up to 1 Gbps.
- AT&T, fiber not available in all locations, $45 with $10 equipment fee per month, advertised speeds of 10Mbps
- Viasat, $69.99 to $199.99 (displaying pricing after 3 month increase), $12.99 equipment fee per month, advertised speeds of 12 Mbps to 100 Mbps.
- PCs for People, $15.00, speeds of 100 Mbps, free modem for fixed wireless and MDU customers through grant / community support.. Also provide hotspot devices and service on the T-Mobile network for $15.00, hotspot costs $90, speeds of approximately 20 Mbps. Participates in ACP to provide a 100% discount on the monthly fee and $15 discount on the hotspot purchase.

d. Project impact

This project will offer extremely affordable and accessible internet service for 3,081 households and an estimated 6,000 individuals living within HACM properties (full list of properties attached). HACM properties to be served are across the metropolitan Milwaukee area and include buildings serving seniors and disable residents. PCs for People recognizes that access does not equal adoption and our proposal therefore offers a comprehensive approach to address barriers of access, affordability, and skills for Milwaukee residents. We will provide an attractive and affordable broadband service option to areas where households are not adopting the internet services available to them due to cost, credit issues, access to banking systems, or restrictive contract terms. The proposed service will cost $15 per month (free with Affordable Connectivity Program subsidy) for residential access to speeds of 100/100Mbps.

During the COVID-19 pandemic, PCs for People saw the need for home internet service skyrocket. The temporary solution was to deploy thousands of hotspots to students' homes. While this was a crucial short-term solution, ongoing demand required increased reliability and speed. PCs for People began developing our broadband solution at this time when we knew something had to change in order to better support students and families. PCs for People is deeply committed to digital equity and is dedicated to establishing state and national best practice models for holistically meeting the connectivity needs of underserved communities.

Our broadband solution is based on two core tenants of affordability and quality of service. Thanks to years of experience as a reseller/wholesaler on the Sprint network (MVNO) where we ship, manage subscriptions, administer billing, and provide customer support for over 65,000 low income households, we have found that $15 per month for internet is the maximum amount a household under 200% of the

poverty line can afford. Our data analysis shows that increasing the price even a dollar can have massive impacts on customer adoption, affordability, and retention.

For these reasons, PCs for People offers an affordable rate of $15 per month for fixed wireless and MDU residential customers. Our service is pre-paid at the beginning of each month, meaning there are no late fees or contracts. A customer can skip a month and easily restart when they are ready. PCs for People adheres to best practices in billing standards, including providing automated reminders to renew subscriptions and offering a no-contract, prepaid service that prevents customers from going into debt to maintain their wireless service. This business model, software infrastructure, and staffing capacity is leveraged from our foundational work managing over 65,000 existing low income hotspot subscribers providing: billing, service turn on/off, and tier 1 customer support.

The lack of income eligibility requirements for our low-cost service reduces the burden on customers and will increase adoption rates. Income data will still be collected and can be reported on, but we will not require the robust income documentation that is a barrier to adoption for many individuals.

As a current Affordable Connectivity Program (ACP) provider, PCs for People will further discount subscription fees, modem costs, and the cost to purchase a computer by leveraging this federal funding. Additionally, as one of the few ACP providers nationally who are both a ISP and device provider, we are able to offer all ACP customers a desktop or laptop for as little as $11.

Our second core tenant of this service is quality. The solution we have developed provides high quality internet that exceeds the high speed needs of today's households. As needs for additional speed grow in the coming years, our service will continue to exceed the average household usage.

Understanding the unpredictable and fluctuating nature of external funding (federal and otherwise), we designed this service to be sustained by the $15 per month customer paid fee. Regardless of the future of the ACP and other federal subsidies, our solution is economically viable independent of federal funding. Our business model outlines uses the affordable rate of $15 per month can cover the following operational needs:

- Network Operation and Maintenance
- Customer Service, digital skills adoption, and mission support of our customer base
- Network Upgrades - funding to increase capacity, coverage, upgrade to 5G and futureproofing
- Network Depreciation - taking a conservative approach our model assumes a 5 year equipment life and is prepared to replace/update network equipment

e. Scalability

PCs for People builds new wired MDU and fixed wireless networks across the country using a replicable and scalable network architecture model. Building on the network architecture planned for this project, service could expand to support additional households in the area surrounding HACM properties via fixed wireless networks. This would utilize the existing fiber infrastructure to offer expanded service while maintaining the existing quality of service. For example:

	Project Plan	Projected Increases
Users	3,081	4,500
Network Nodes	18	14
Services Provided	Wired MDU or 5G fixed wireless	5G fixed wireless
Area Served	16 HACM properties	Up to 1 mile radius around each property

Establishing this network in partnership with HACM would also seed possible further growth potential to underserved neighborhoods across Milwaukee, as the technical and customer support and outreach mechanisms put in place through this project could scale to support networks in other parts of the city.

f. Economic development

This project is designed to improve economic mobility for low-income residents of HACM properties and potentially to the surrounding areas as well, and can also contribute to economic development across Milwaukee. Establishing affordable, reliable, high-speed internet access programs is a crucial step toward empowering HACM and other low-income households with the resources needed for educational and economic advancement. By serving those who have not adopted the internet services available due to cost, credit issues, and access to banking systems, this project will lead to increased employability - including access to telecommuting opportunities - and job retention for HACM residents and other low-income households. With potential fixed wireless expansion through scaling this project as described above, businesses in the coverage area could have access to speeds of up to 100/100Mbps at a very affordable price, allowing them to offer higher quality and expanded services and increasing local employment opportunities as well.

HACM has a history of promoting economic mobility for residents that will be further catalyzed by expanding affordable access to high-speed broadband. Since 1994, HACM's Homeownership Program has helped hundreds of people realize their dream of becoming homeowners. The program offers ways for public housing residents, rent assistance voucher holders and others to work towards acquiring an asset that can benefit their family and the community for generations to come. HACM offers homes for sale, and also assists residents in preparing for and achieving homeownership goals.

HACM also works with the City of Milwaukee to advance Milwaukee's Choice Neighborhood Transformation Plan to transform Westlawn and the surrounding neighborhood into an inclusive community of opportunity with quality housing, schools, businesses, services, and amenities. Milwaukee's Choice Neighborhood Transformation Plan builds the revitalization of the eastern half of the Westlawn public housing development in 2012 into modern, mixed-income and eco-friendly housing with the investment of over $280 million in public and private funds in the advance of the Choice Neighborhood Plan. Making comprehensive affordable broadband available in the Westlawn area will further catalyze these developments to promote economic opportunity for both residents and businesses.

g. Effect upon broadband service to adjacent areas

For over 20 years, PCs for People has been a national leader in connecting unserved and underserved individuals, families and communities with computer equipment, internet access and digital literacy support and training. PCs for People uses data-driven processes to design networks targeting communities most in need of affordable, reliable high-speed service. Network design takes into account income and demographic data, and also incorporates local expertise on existing connectivity options (or lack thereof). As a nonprofit organization, we design our approach to maximize community impact rather than monopolize market penetration, and we frequently partner with other ISPs on both connectivity and device access projects. Our technological approaches do not impair the ability of any other broadband service provider to extend broadband service to areas adjacent to our proposed project areas.

3.2.5 Supplemental Information

History and Experience

For over 20 years, PCs for People has been a national leader in connecting unserved and underserved individuals, families and communities with computer equipment, internet access and digital literacy support and training. In 2019, on the heels of changes to CBRS, PCs for People engineers began developing a new approach to affordable internet. We developed a model to provide hyper-local solutions to internet affordability using small cell, LTE technology and partnering with local groups (nonprofit, government, and corporate) to utilize vertical assets and existing fiber infrastructure. By greatly reducing the initial construction costs and the ongoing fiber expenses, we are able to offer a high speed option that only costs $15 per month to the customer. As a nonprofit organization, PCs for People is committed to maintaining the low cost of the service and there are no planned increases to this fee.

PCs for People has spent the last two years developing and refining our affordable internet service while expanding to additional locations and providing thousands of low-cost computers to families across the United States. We currently operate nine offices located in Minnesota, Illinois, Ohio, Maryland, Colorado, Missouri and Georgia. Each market provides NAID and R2 certified data destruction and recycling services to local entities. We then refurbish devices with the latest software as a Microsoft Authorized Refurbisher and distribute directly into the hands of families, students, and other nonprofits. Serving communities locally through our in-store retail options and nationally through our online sales platform, we currently distribute more than 47,000 computers annually.

PCs for People's customer service team receives between 500 and 800 calls daily with a team of 20 customer service representatives. They provide thoughtful, kind support to their customers who may need help connecting their computer to the internet or with other basic functionality. They manage billing, approve customer eligibility (when required), and create tickets for device repairs and replacements. PCs for People looks forward to the opportunity to expand our customer service team and to train and hire local Milwaukeeans for this project.

Over the past two years, PCs for People has installed fixed wireless networks and wired services to multi-dwelling unit residential properties in cities and towns across the country. In addition to the network currently active in Milwaukee (described below), networks are active in Cuyahoga County, Columbus, De Graff, Elyria, Hudson, Logansville, Lorain, and Middletown, OH; Mankato, MN; Belleville, IL; Kansas

City, KS; and Austin, TX. New networks are funded and in the pre-deployment phase in Atlanta, GA; Kansas City, MO; Hanoverton and Kensignton, OH; and Minneapolis, MN.

In partnership with the Microsoft Airband Initiative and Walnut Way Conservation Corp., PCs for People installed the first Milwaukee based tower on the roof of the new Wellness Center located in the Lindsay Heights neighborhood. This is the first tower of a three-tower network that is being installed in the Lindsay Heights neighborhood. The other two towers have been installed on Fire Station 30 and Fire Station 5, creating a "triangle" of coverage reaching approximately 8,000 households. Additional vertical assets are being explored to expand coverage beyond this initial geography.

PCs for People has built on the success of this first community and has recently launched service at Westlawn Gardens a HACM property providing both wired MDU (100/100) service and 4G LTE fixed wireless (50/10) service to the HACM townhomes surrounding the mid-rise. Prior to PCs for People, only AT&T was available in the HACM community. This project is an example of the micro level internet desserts that exist within Milwaukee and have been identified by HACM. It was made possible through the partnership and collaboration of Microsoft Airband, the City of Milwaukee, HACM, and PCs for People.

Financial Ability

PCs for People has operated as a 501(c)3 nonprofit organization since 2008. As a social enterprise, our budget has historically been close to 90% earned income, with minimal support from grants and other funding sources. This has changed with increased philanthropic interest in the digital divide during the COVID-19 pandemic but our broadband service model is still built as a sustainable social enterprise at a household subscription rate of $15/month. PCs for People's 2021 fiscal year operating budget was $21 million. Looking ahead to fiscal year 2022, our budget has grown to $34 million. Additionally, the Cuyahoga County (Ohio) Office of Innovation and Performance has recently issued its intent to enter into a contract with PCs for People to provide 5G LTE and wired MDU service across the county under RFP #6906 for a total of $19 million.

Thanks to more than 20 years of project management and organizational experience, the PCs for People team has successfully completed all broadband service projects to date on time and within budget. We include sufficient contingency plans in our schedule and budget so that we have a very high likelihood of completing projects upon contract terms.

Access to Healthcare and Education

The COVID-19 pandemic demonstrated the importance for affordable, high-speed internet and digital skills to ensure families can access critical health, education, and employment services. PCs for People has partnered with a variety of healthcare entities, including hospitals and Medicaid providers, to offer subsidized broadband service and device access for use in telehealth programs. We are eager to build on these efforts in partnership with Milwaukee healthcare providers. Having free or low-cost access to broadband service, as well as the $100 computer subsidy available through the Affordable Connectivity Program, will enable low-income households to participate in telehealth visits and new applications for home health monitoring. Many HACM households include students attending schools across Milwaukee, and ensuring those households access to affordable broadband service will mean that students are able to access educational opportunities from home regardless of whether schools are able to provide

connectivity or devices. Students can continue learning during the summer months, and households with multiple students will not have to contend with limited bandwidth and sharing devices within the household during the school year.

City of Milwaukee Support

The City of Milwaukee is a strong supporter and collaborator in this project will provide access to existing fiber infrastructure, construct new middle mile fiber in areas identified by the project, provide expertise and technical support in data backhaul, host PCs for People backbone infrastructure/ Colocation and facilitate collaboration between government entities to secure vertical assets for tower locations as needed.

Additional Information

Outreach and Assistance

At PCs for People, our approach is to leverage community relationships to build trust and awareness of our services. HACM will be a key partner in engaging residents to consult in the planning and marketing of this project. We understand the importance of being part of a community, building solutions in collaboration with those most impacted by inequity. First and foremost, we must understand the cultural, political, and socio-economic environment that exists in each community we work with. From that understanding we can begin developing the appropriate engagement opportunities with trusted partners in the area. Our staff are well known in the communities we serve and we strive to be familiar, supportive partners.

Our marketing and outreach efforts include grassroots strategies to build trust and understanding. Some of our strategies include holding events in partnership with libraries, schools, and hospitals, and tabling at community events. PCs for People employs a Community Impact Manager in Milwaukee who has established partnerships with other nonprofit organizations that are known and trusted in the community, including Employ Milwaukee, the City of Milwaukee Public Library, the Dominican Center, Digital Bridge, and United Way of Greater Milwaukee & Waukesha County. Additionally, PCs for People has been invited by the Alderpersons in the districts currently under coverage to engage with their offices for continued outreach.

Customers will be able to visit our website, call, or visit our retail location to check their coverage, if in coverage, they will be able to complete their order. A modem with instructions will be mailed to them in less than 7 working days. Once received, the subscriber simply plugs the modem into a power outlet and the receiver locates the LTE signal from the nearest tower and provisions automatically. We then provide integrated customer service support and digital literacy training both in person and via phone. Our support team will follow up with all new customers to make sure they are connected and that the service is meeting their needs.

PCs for People's network architecture and history of serving low-income subscribers enables us to offer highly accessible and supportive services. There is no need for a burdensome payment assistance program application because anyone in our coverage will have access to the same affordable pricing. We also participate in EBB and can further defer the monthly cost through this federal funding. We provide guidance and support through the EBB enrollment process. Through both our call center and in-person support at our downtown location, we provide multilingual access to services (English, Spanish, Somali) as well as adaptive technologies for people with disabilities. This includes support with the simple plug-in of the home modem as well as assistance connecting to the network using a variety of devices such as computers, smartphones, etc.

Fixed Wireless Deployment

PCs for People's fixed wireless model is a private, small cell wireless network on the CBRS band. This network utilizes the newly available 3.5 GHz bandwidth on the CBRS spectrum to provide a combination of high speed and longer range in between the more widely used 2.4 GHz (long-range but lower-speed) and 5.0 GHz (higher speed but shorter range) bandwidths. The 3.5 GHz bandwidth on the CBRS

spectrum has historically been reserved for military and government use, primarily for navy radar and communication. Beginning in 2020 it was made available for shared use through a tiered access system, through which PCs for People pays an administrative fee per user to access the spectrum.

Use of the CBRS spectrum allows for an ideally calibrated balance between urban signal penetration and data throughput, which is compounded by the use of 5G LTE technology to transmit data. 5G LTE encoding allows significantly more data to be transmitted through obstacles like trees and homes via the same frequency signal as standard wi-fi transmission, doubling the range of transmission devices in comparison to standard wi-fi.

PCs for People has deployed the newly available CBRS spectrum in multiple projects in 2020-2021, greatly reducing the cost of our internet service and allowing us to provide a uniquely accessible option. The networks we propose for this project will be 5G wireless networks capable of delivering capacity of 400mbps/125mbps data speeds and throttled at 100mbps/100mbps.

Critical to understanding these speeds is the small cell nature of the network. Instead of a large cell tower serving a vast swath of a city with a highly overloaded network, the small cell model serves a significantly smaller geography with less potential customers by design; resulting in a significantly lower network contention ratio of about 10:1. Often traditional ISPs advertise their service as “speeds up to X mbps,” however customers often see speeds much lower than the highest possible speed advertised. With the small cell network, the average customer will experience much higher average speeds throughout their daily use because of this low network contention ratio..

PCs for People builds new fixed wireless networks using a replicable and scalable network architecture model. Local networks can be tied to a PCs for People data center “point of presence” (POP) or administered via cloud software for small POPs. For this project we will utilize OARNet’s fiber infrastructure and secure rooftop access agreements with libraries and other vertical asset properties identified by the County in order to wirelessly transmit signal to the coverage areas.

Locations with fiber access serve as primary locations to broadcast fixed wireless 5G LTE signal in the CBRS spectrum (3.5 Ghz) as well as wireless bridges for backhaul to secondary locations using millimeter wave technology (60Ghz, 24Ghz, and 5.0Ghz). Secondary locations without fiber access for backhaul will rely on wireless backhaul. Wireless backhaul requires line of sight (LOS) or near line of sight from the rooftop of the primary location to the secondary location. The secondary locations then rebroadcast the capacity from the wireless bridge out to the community via 5G LTE. 5G LTE signals in the CBRS spectrum are non-line of sight (nLOS) and are able to penetrate trees, buildings, and other urban obstacles.

Each subscriber receives an indoor home modem which can be shipped directly and does not require customer premise installation. The subscriber simply plugs the modem into a power outlet and the receiver locates the signal from the nearest tower and provisions automatically. This network architecture allows for rapid deployment and offers high reliability due to wireless non-line of sight transmission.

We utilize standard fiber based networking equipment (routers, switches, hub, modules) from the data center to the distribution site. Commercial and carrier grade radio equipment is used for antenna, eNB, and other RAN equipment. For customer premise equipment (CPE) we use a variety of equipment all meeting the international 5G standards. When connected in 5G mode, CPE throughput potential is significantly higher, reaching over 300mbps. Each tower can support about 160 customers/households at a network contention ratio of approximately 10:1.

Both transmission and customer premise equipment have a standard 2-year manufacturer's warranty, a 5-year expected useful life. Capital replacement costs of all equipment are built into monthly fees charged to our customer base.

Quality of Service (QoS)
As described above, PCs for People will prioritize traffic with QoS to ensure packet delivery and latency remains at or above industry standards for the routing protocols and perform packet shaping to deliver traffic at highest priority..

PCs for People commits to low contention ratios as well as to offering the same high speeds to all users regardless of individual data usage. We are additionally committed to no content filtering, and only restrict access by protocol (bit torrenting). The system architecture allows for significant access and connection redundancy because the actual contention ratio is so low in any given delivery area that other antennas/network capacity can fill in during an outage. Effectively, the network is operated at 60% of the customer capacity. This allows for high quality customer service, and also significant network and infrastructure redundancy to ensure reliability.

PCs for People uses strict service level agreements to define service hours, define repair protocols, and set expectations for our customers.

Providing Maintenance Notice:
From time to time, PCs for People will perform network maintenance for network improvements and preventive maintenance. In some cases, PCs for People will need to perform urgent network maintenance, which will usually be conducted within the routine maintenance windows. PCs for People will use reasonable efforts to provide advance notice of the approximate time, duration, and reason for any urgent maintenance outside of the routine maintenance windows.
Maintenance Windows:
Routine remote maintenance and software updates may be performed Monday – Friday 12 a.m. – 8 a.m. Local Time. On site maintenance and repair scheduled in advance to avoid peak usage hours and customers provided prior notice via email, text, and/or robo calls based on customer preferences. Emergency repairs are performed asap, and updates communicated to customers regularly.

A "Service Disruption" is defined as an outage, disruption, or severe degradation, other than an Excluded Disruption, that interferes with the ability of a network to transmit and receive network traffic in any building. The Service Disruption period begins when Customer reports a Service Disruption using PCs for People's trouble ticketing system by contacting Customer Care, PCs for People acknowledges receipt of such trouble tickets, PCs for People validates that the Service is affected, and Customer releases the Service for testing. The Service Disruption ends when the affected Service has been restored. "Service

Degradation" means a degradation of the Service that is not a Service Disruption or a result of an Excluded Disruption, such as failure of the broadcasting sectors to transmit and receive network traffic. "Excluded Disruptions" means (i) planned outages, (ii) routine or urgent maintenance, (iii) time when fiber provider is unable to gain access to Customer's Service Location, if necessary, (iv) service issues arising from acts of omissions of Customer or Customer's representatives or agents, (v) Customer equipment failures including equipment capability issues, (vi) Customer is not prepared to release the Service for testing, and (vii) events outside the reasonable control of PCs for People.

Priority	**Criteria**
Priority 1	· Service Disruption resulting in a total loss of Service
Priority 2	· Service Degradation to the point where Customer is unable to use the Service and is prepared to release it for immediate testing
Priority 3	· Service Degradation where Customer is able to use the Service and is not prepared to release it for immediate testing. · A service problem that does not impact the Service; or · A single non-circuit specific quality of Service inquiry

Service Credits:
If the time to restore a Priority 1 or Priority 2 outage exceeds the time below Customer may request credit equal to the corresponding percentage of monthly recurring charges for the Affected Service as set forth herein:

- Priority 1: > 8 hours 10%
- Priority 1: > 24 hours 25%
- Priority 2: > 2 business days 10%
- Priority 2: > 4 business days 25%

Any credit to be applied will be off-set against amounts due from Customer to PCs for People in the billing cycle following the date PCs for People makes its credit determination. Credit requests must be submitted, as your sole and exclusive remedy, to PCs for People within thirty (30) days of the calendar month in which the SLA Target was missed. PCs for People will exercise commercially reasonable efforts to respond to such credit requests within thirty (30) days of receipt thereof.

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Milwaukee

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PCs for People

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Microsoft Airband Coverage

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HOUSING AUTHORITY OF THE
CITY OF MILWAUKEE

Willie L. Hines, Jr.
Secretary-Executive Director

Board of Commissioners

March 16, 2022

Steffany Powell Coker
Secretary to the Commission
Public Service Commission of Wisconsin
North Tower, 6th Floor
Hill Farms State Office Building
4822 Madison Yards Way
Madison, Wisconsin 53705

Re: State Broadband Expansion Grant Program - 5-BF-2022

Dear Ms. Coker:

As Director of Community Programs & Services for the Housing Authority of the City of Milwaukee (HACM), I submit this letter of support to offer HACM's endorsement of PCs for People's application to the Public Service Commission of Wisconsin's Broadband Expansion Grant Program.

HACM has been a national leader in housing for over 70 years and currently provides high-quality, affordable housing options to over 10,000 Milwaukee families, seniors and disabled adults. We also work with our residents to assist them in achieving self-sufficiency through a wide range of economic, health and social services.

We applaud the Public Service Commission of Wisconsin's recognition of the critical importance of affordable, high-speed internet access to ensure that unserved and underserved households can access critical healthcare, education, and employment opportunities. HACM's low-income residents are currently underserved by the broadband service offered at our properties, and we look forward to partnering with PCs for People to offer an affordable, reliable, high-speed broadband option for our residents.

We have attached a list of our public housing and other subsidized housing developments for your information, which have a total of almost 3,000 units which have limited participation in and/or access to broadband service.

HOUSING AUTHORITY OF THE
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Secretary-Executive Director

Board of Commissioners

Based on information residents have shared with case managers and/or other HACM staff, broadband participation in our affordable housing has been limited for a variety of reasons, including:

(1) Limited promotion by normal broadband carriers to public housing residents, as perhaps they are not seen as a profitable market;

(2) A number of public housing and low income households (both seniors and families) also have limited technical knowledge regarding internet and broadband. For example, during the time period when school was providing virtual instruction, the public school system had to lend chromebooks and hotspots to resident families with children. Many families had trouble connecting the laptop and hotspot and HACM staff had to provide technical assistance for many families to allow them to connect their children to their school.

(3) Although HACM has promoted the Emergency Broadband Benefit program and the Affordable Connectivity program, many low-income residents still do not understand enough about the program or have barriers to signing up. These barriers include:

a. Family capacity (time/understanding of program/internet access) to research the options or to obtain information on eligibility and potential carriers in the area and how to sign up for the broadband.

b. Some families have applied to the EBB or Affordable Connectivity program only to be turned down if they owed money to a provider in the past.

c. Other barriers such as credit checks; hidden fees; equipment charges; installation costs; contracts; potential price increases; and"bait-and-switch" in which some carriers talk residents into some other "deal" to include other services.

d. The household lacks hardware (smartphone or computer/laptop/tablet).

HOUSING AUTHORITY OF THE
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In order to support the success of this project, the Housing Authority of the City of Milwaukee will provide PCs for People with access to all low-income housing properties and support outreach efforts to encourage adoption of low-cost or free service. HACM residents will be engaged in planning and marketing the project through elected resident councils. We appreciate the Commission's dedication to support equitable access for all Wisconsin residents.

Sincerely,

Ken Barbeau, Director of Community Programs & Services

Housing Management
809 N. Broadway, 3rd Floor
Milwaukee, WI 53202
(414) 286-5824 Voice
(414) 286-0833 Fax

Community Services
650 W. Reservoir Ave.
Milwaukee, WI 53212
(414) 286-5100 Voice
(414) 286-3169 Fax
(414) 286-3504 TDD

Housing Operations
5125 W. Lisbon Ave.
Milwaukee, WI 53210
(414) 286-2192 Voice
(414) 286-8742 Fax

Maintenance Operations
2411 N. 51st St.
Milwaukee, WI 53210
(414) 286-2931 Voice
(414) 286-0208 Fax

Modernization & Development
401 E. Ogden Ave.
Milwaukee, WI 53202
(414) 209-1800 Voice
(414) 209-1801 Fax

Rent Assistance
5011 W. Lisbon Ave.
Milwaukee, WI 53210
(414) 286-5650 Voice
(414) 286-5094 Fax
(414) 286-5845 TDD

809 N. Broadway, 3rd Floor, Milwaukee, WI 53202
Mailing Address: **P.O. Box 324. Milwaukee. WI 53201-0324**

Housing Authority of the City of Milwaukee

Housing Development	Address	City	State	Zip	Subsidy type	Type 2	# units
Highrises/Midrises:							
Arlington Court	1633 N. Arlington Place	Milwaukee	WI	53202	Public housing	Senior/disabled	230
Becher Court	1802 W. Becher St.	Milwaukee	WI	53215	LIHTC Project-Based Voucher	Senior/disabled	120
Cherry Court	1525 N. 24th St.	Milwaukee	WI	53205	LIHTC Project-Based Voucher	Senior/disabled	120
College Court	3334 W. Highland Blvd	Milwaukee	WI	53208	Public housing	Senior/disabled	251
Convent Hill	455 E. Ogden Ave.	Milwaukee	WI	53202	LIHTC Project-Based Voucher	Senior/disabled	120
Highland Gardens	1818 W. Juneau Ave.	Milwaukee	WI	53233	LIHTC Project-Based Voucher	Senior/disabled	114
Holton Terrace	2825 N. Holton St.	Milwaukee	WI	53212	LIHTC Project-Based Voucher	Senior/disabled	120
Lapham Park	1901 N. 6th St.	Milwaukee	WI	53212	LIHTC Project-Based Voucher	Senior/disabled	201
Lincoln Court	2325 S. Howell Ave.	Milwaukee	WI	53207	Public housing	Senior/disabled	110
Locust Court	1350 E. Locust St.	Milwaukee	WI	53212	Public housing	Senior/disabled	230
Merrill Park	222 N. 33rd St.	Milwaukee	WI	53208	LIHTC Project-Based Voucher	Senior/disabled	120
Mitchell Court	2600 W. National Ave.	Milwaukee	WI	53204	Public housing	Senior/disabled	100
Olga Village	722 W. Washington St.	Milwaukee	WI	53204	LIHTC Project-Based Voucher	Senior/disabled	37
Riverview	1300 E. Kane Place	Milwaukee	WI	53202	Public housing	Senior/disabled	180
						Subtotal	***2053***
Family:							
Hillside Terrace	1419 N. 8th St.	Milwaukee	WI	53205	Public housing	Family	470
Parklawn	4434 W. Marion St.	Milwaukee	WI	53216	Public housing	Family	380
Townhomes at Carver Park	1901 N. 6th St.	Milwaukee	WI	53212	LIHTC Project-Based Voucher	Family	122
Highland Homes	1818 W. Juneau Ave.	Milwaukee	WI	53233	LIHTC Project-Based Voucher	Family	56
						Subtotal	***1028***
						Total	***3081***